

IN THE CLAIMS:

1. (Currently amended) A method of producing ~~a polyolefin~~ polypropylene polymers, comprising:
contacting a first stream comprising propylene with or without one or more other olefins with at least one removal device to form a second stream comprising propylene with or without the one or more olefins, wherein the at least one removal device comprises molecular sieve particles having an average pore size of from 6 Å to 16 Å;
contacting the second stream with a metallocene catalyst system to produce a third stream comprising one or more (co)polypropylenes and unpolymerized propylene and / or olefins;
separating at least a portion of the un-polymerized propylene and / or olefins from the third stream to form a fourth stream comprising the at least a portion of the separated un-polymerized propylene and / or olefins; recovering polypropylene polymer(s) from the third stream, and
combining the fourth stream with the first stream prior to contacting the first stream with the at least one removal device.
2. (Cancelled)
3. (Cancelled)
4. (Previously presented) The method of claim 1, wherein the second stream comprises less than 1 ppm of alcohols, halogen moieties, and organohalides.
5. (Original) The method of claim 1, wherein the first stream comprises fresh propylene.
6. (Currently amended) The method of claim 1, wherein the first stream comprises ~~alpha-olefin monomers selected from the group selected of ethylene, propylene, and~~ alpha-olefins having from four to 16 carbon atoms.

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7. (Original) The method of claim 1, wherein the at least one removal device comprises a shell having a first support member.
8. (Original) The method of claim 1, wherein the at least one removal device comprises a shell having a first support member in contact with at least a first portion of one or more molecular sieve particles.
9. (Original) The method of claim 1, wherein the at least one removal device comprises a shell having a first support member disposed a distance from at least a second portion of the one or more molecular sieve particles.
10. (Original) The method of claim 1, wherein the first stream has a flow rate of from 3700 kg/hr to 56000 kg/hr.
11. (Original) The method of claim 1, wherein the second stream has a flow rate of from 3700 kg/hr to 56000 kg/hr.
12. (Original) The method of claim 1, wherein the third stream has a flow rate of from 3700 kg/hr to 56000 kg/hr.
13. (Original) The method of claim 1, wherein the fourth stream has a flow rate of from 2600 kg/hr to 56000 kg/hr.
14. (Original) The method of claim 1, in which the metallocene catalyst has an efficiency greater than 3500 gPP/(gCat*hr).
15. (Original) The method of claim 1, in which the one or more molecular sieve particles comprise a 13X molecular sieve.
16. (Previously amended) The method of claim 1, wherein the second stream comprises less than 0.5 ppm of alcohols, halogen moieties and organohalides.

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17. (Previously amended) The method of claim 1, wherein the fourth stream comprises 5 ppm or more alcohols, halogen moieties and organohalides.
18. (Currently Amended) The method of claim 1, wherein the one or more molecular sieve particles have a size of ~~8-by-14~~ 8-14 mesh.
19. (Original) The method of claim 1, wherein the metallocene catalyst has an efficiency greater than 3500 gPP/(gCat*hr).
20. (Original) The method of claim 1, wherein the metallocene catalyst comprises 1.5 wt % or less active metallocene and 12 wt % or less of metal alkyl scavenger.
21. (Original) A method of producing polypropylene, comprising:
contacting a first monomer stream comprising propylene monomers with a supported metallocene catalyst to form a product comprising polypropylene, unpolymerized propylene monomers, organohalides and alcohols;
providing a second monomer stream comprising at least a portion of the product;
passing at least a portion of the second monomer stream through a removal device comprising molecular sieve particles supported by a mesh screen having a pore size of from 6 Å to 16 Å to form a third stream, wherein at least a portion of the alcohols and organohalides from the second monomer stream are absent from the third stream; and
contacting at least a portion of the third stream with a supported metallocene catalyst to form additional polypropylene.
22. (Currently amended) ~~A~~ The method of producing polypropylene in accordance with claim 21, comprising:
first passing propylene feed stream through one or more removal devices to form a purified monomer stream, wherein the propylene feed stream has alcohols and organohalides in a combined amount greater than 5 ppm and the purified monomer stream comprises alcohols and organohalides in a combined amount less than 1 ppm;
and

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contacting the purified monomer stream with a supported metallocene catalyst to polymerize the purified monomer stream and form a product mixture that includes polypropylene macromers or polymers, unreacted or partially reacted propylene monomers, alcohols and organohalides.

23. (Original) The method of claim 22, wherein the passing the propylene feed stream through one or more removal devices to form a purified monomer stream comprises combining a first monomer stream and a second monomer stream, the first monomer stream comprising propylene monomers and the second monomer stream comprising unreacted or partially reacted propylene monomers, alcohols and organohalides.
24. (Currently amended) The method of claim 22, wherein the passing the propylene feed stream through one or more removal devices to form a purified monomer stream comprises combining a first monomer stream and a second monomer stream, the first monomer stream comprising propylene monomers and the second monomer stream comprising unreacted or partially reacted propylene monomers, and alcohols and organohalides in a combined amount greater than 10 ppm.
25. (Currently amended) The method of claim 22, further comprising removing the polypropylene macromers or polymers from the product mixture to form a recycle stream and combining the recycle stream with the propylene feed stream.
26. (Previously presented) A method of producing polypropylene, comprising:
contacting propylene monomers with a supported metallocene catalyst to polymerize the propylene monomers and form a product mixture that includes polypropylene macromers or polymers, unreacted or partially reacted propylene monomers, alcohols and organohalides;
removing a portion of the product mixture to form a recycle stream and passing the recycle stream through a removal device comprising zeolite particles having a pore size of from 6 to 16 Å;

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transferring at least a portion of the alcohols and organohalides from the recycle stream to the removal device to provide a purified recycle stream having alcohols and organohalides in a combined amount of 1 ppm or less; and
contacting at least a portion of the purified recycle stream with the supported metallocene catalyst to form polypropylene.

Claims 27-30 (Canceled).